

# **AUTOMATIC PHONE-ANSWERING METHOD BY RING**

## **DURATION**

### **Field of the invention**

The present invention relates to an automatic phone-answering method by  
5 ring duration and, more particularly, to a method capable of determining  
whether a timer counts out different predetermined ring durations in proper  
order when a user dials to an communication device many times, hence  
accomplishing automatic phone-answering of the communication device.

### **Background of the invention**

10 An existent telephone having the automatic phone-answering function  
comprises a telephone interface, a ring and hook detector, a loudspeaker, a  
voice generator and a control circuit. The control circuit is connected to the  
ring and hook detector, the loudspeaker and the voice generator. The control  
circuit controls the telephone interface to let the telephone directly connect the  
15 telephone line and let the loudspeaker and the voice generator not work when  
the ring and hook detector detects the mouthpiece of the telephone has been  
taken up. The control circuit also controls the voice generator to automatically  
answer a phone call, ask for the identity of the caller and reject the call  
according to predetermined voice signals when the ring and hook detector  
20 detects there is a ring signal on the telephone line. The control circuit can also  
simultaneously let the loudspeaker be connected with the telephone line to  
amplify and output sound signals from the telephone line so as to let a user be  
capable of hearing the voice of the caller without answering the phone call.

In other words, the voice generator is used to automatically answer a phone

call, ask the identity of the caller or reject a phone call at suitable times according to predetermined voice signals.

There is also a phone-answering protocol device using the number of times of the ring signal as a secret sign. This phone-answering protocol device  
5 comprises a microcomputer control unit as the center. The microcomputer control unit is connected to a detection circuit, a vibration circuit, an output control circuit, a ring device, a dial circuit, a voice circuit and a keyboard.

The input line of the microcomputer control unit is connected with the detection circuit, and the output line thereof is connected with the output  
10 control circuit. A software program is also provided to accomplish the object of the protocol by the number of input times of the ring signal and the maximum elapsed time of the dial action.

Because there are many different types of the number of input times of the ring signal, the application of the above phone-answering protocol device is  
15 much limited.

### **Summary of the invention**

One object of the present invention is to provide a method capable of determining whether a timer counts out different predetermined ring duration in proper order when a user dials to a telephone or mobile phone many times,  
20 hence accomplishing automatic phone-answering of the telephone or mobile phone.

To achieve the above object, the automatic phone-answering method by ring duration of the present invention comprises the steps of:

determining whether an elapsed time counter is activated when there is an

incoming call;

stopping the action of the elapsed time counter if the elapsed time counter is activated;

determining whether a timer counts out a predetermined ring duration;

5 determining whether a counter counts out a predetermined calling number if the timer counts out the predetermined ring duration;

automatically answering the incoming call if the counter counts out a predetermined calling number; and

resetting the counter to an initial state.

10 If the above elapsed time counter hasn't been activated, the counter is reset, and the timer is activated.

If the above timer doesn't count out the predetermined ring duration, the counter is reset, and the timer is activated.

After the above timer is activated, if the incoming call is answered by  
15 someone, the timer is stopped, and the counter is reset to the initial state. If there is no one answering the incoming call, the incoming call is ringed off, and the timer is stopped. After the timer is stopped, the value of the timer is checked to see whether the value of the timer is the predetermined value. If the answer is no, the counter is reset to the initial state. Otherwise, the value of the  
20 counter is added by 1, the elapsed time counter is activated, and the counter is then reset to the initial state.

The various objects and advantages of the present invention will be more readily understood from the following detailed description when read in conjunction with the appended drawing, in which:

**Brief description of the drawings:**

Figs. 1A and B show the flowchart of the present invention.

**Detailed description of the preferred embodiments**

The present invention provides an automatic phone-answering method by  
5 ring duration. The components of the present invention comprise a ring detector,  
a timer, a counter and a control circuit (not shown).

Figs. 1A and 1B show the flowchart of an automatic phone-answering  
method by ring duration of the present invention. The flowchart comprises the  
following steps.

10 Step 11: There is an incoming call; Step 12 is then jumped to;

Step 12: Whether an elapsed time counter has been activated is determined.  
If the elapsed time counter has been activated, Step 121 is jumped to; otherwise,  
Step 122 is jumped to;

Step 121: The elapsed time counter timer is stopped. Step 13 is then jumped  
15 to;

Step 122: The counter (for counting the number of times of dial) is reset.  
Step 143 is then jumped to;

Step 13: Whether the value of the timer is the predetermined vault is  
determined. If the answer is yes, Step 14 is jumped to; otherwise, Step 122 is  
20 jumped back to;

Step 14: Whether the counter counts out a predetermined calling number is  
determined. If the answer is yes, Step 141 is jumped to; otherwise, Step 143 is  
jumped to;

Step 141: The incoming call is answered automatically. Step 142 is then

jumped to for resetting the counter to an initial state;

Step 143: The timer is activated. Step 15 is then jumped to;

Step 15: Whether there is anyone answering the incoming call is determined.

If the answer is yes, Step 151 is jumped to; otherwise, Step 153 is jumped to;

5      Step 151: The timer is stopped. Step 152 is then jumped to for resetting the counter to the initial state;

Step 153: The incoming call is ringed off. Step 154 is then jumped to for stopping the timer;

Step 155: The value of the timer is checked. Step 16 is then jumped to;

10      Step 16: Whether the value of the timer is the predetermined value is determined. If the answer is yes, Step 161 is jumped to; otherwise, Step 162 is jumped to;

Step 161: The counter is reset to the initial state; and

15      162: The value of the timer is added by 1. Step 163 is then jumped to for activating the elapsed time counter and resetting the counter to the initial state.

To sum up, the present invention provides a method, which can determine whether a timer counts out different predetermined ring duration in proper order when a user dials to a telephone or a mobile phone many times, hence accomplishing automatic phone-answering of the telephone or mobile phone.

20      Although the present invention has been described with reference to the preferred embodiment thereof, it will be understood that the invention is not limited to the details thereof. Various substitutions and modifications have been suggested in the foregoing description, and other will occur to those of ordinary skill in the art. Therefore, all such substitutions and modifications are intended

to be embraced within the scope of the invention as defined in the appended claims.